REMARKS

This amendment and these remarks are responsive to the Office action dated June 6, 2003. Claims 1-19, 30-39, and 46-48 are pending in the application. In the Office action, the Examiner apparently rejected all of the pending claims under 35 U.S.C. §102 or 103, as follows:

- Claims 1-3, 10-19, 35, 46, and 47 were rejected under 35 U.S.C. § 102(e).
- Claims 4-6, 8, 9, 30-34, 36-39, and 48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over one or more references.
- Claim 7 is listed as rejected in the Office Action Summary; however, the Examiner did not discuss the basis for this rejection in the Detailed Action.

Applicants traverse the rejections. Nevertheless, to reduce the number of issues under consideration in this response, and to expedite the issuance of a patent, applicants have amended claims 1, 3, and 9, and canceled claims 46-48, without prejudice, reserving their right to pursue these claims as originally filed in a continuation application. Moreover, applicants present arguments below showing that the claims are neither anticipated nor obvious. Accordingly, applicants respectfully request reconsideration of the application, and prompt issuance of a notice of allowance.

I. Claim Rejections – 35 U.S.C. § 102

A. Claims 1-19

The Examiner rejected independent claim 1 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,203,759 to Pelc et al. Applicants disagree, contending that the claim is patentable as written. Nevertheless, to expedite issuance of a patent,

and to more particularly point out and claim aspects of the invention, applicants have amended claim 1.

Currently amended claim 1 is directed to a system for delivering fluid to a sample holder. The system includes, among other elements, a positive displacement pump. Claim 1 recites that "operation of the positive displacement pump provides non-contact deposition of fluid aliquots having a volume of less than about 5 microliters per aliquot." In contrast, Pelc et al. does not teach or suggest operation of a positive displacement pump to provide non-contact deposition of fluid aliquots.

Pelc et al. relates to a microvolume liquid handling system 10 (Figure 1). System 10 has a positive displacement pump 12 that is disposed in fluid communication with a microdispenser 16 using tubing 18. Microdispenser 16 has a nozzle tip 63 from which fluid is dispensed. Microdispenser 16 produces sub-nanoliter drops by varying the magnitude and duration of an electrical signal applied to the microdispenser (col. 6, lines 6-16). Microdispenser 16 operates using a piezoelectric transducer 60 that constricts with an applied voltage to deform a glass capillary 62 (Figure 3; col. 8, lines 38-58). Deformation of the capillary produces a pressure wave that emits a droplet 26 under high acceleration. Accordingly, microdispenser 16 may provide non-contact deposition of sub-nanoliter fluid aliquots.

The Examiner asserts that Pelc et al. teaches a positive displacement pump that can "measure and dispense picoliter droplets of fluid." Applicants strongly disagree: the operation of the microdispenser, not the positive displacement pump, dispenses picoliter droplets of fluid. The positive displacement pump of Pelc et al. primes and washes the system and controls pressure in the system (col. 6, lines 43-48). The positive displacement pump also can "dispense higher volumes of liquid through the

microdispenser, allowing dilute solutions to be made" (col. 6, lines 48-52). However, Pelc et al. does not teach or suggest that "operation of the positive displacement pump provides non-contact deposition of fluid aliquots" of any volume, particularly not fluid aliquots "having a volume of less than about 5 microliters per aliquot," as recited by amended claim 1. Yet, this ability to dispense small volumes, enabled here by operation of the recited pump, allows assays to be assembled at smaller volumes, saving space and reagents. Therefore, currently amended claim 1 is patentable over the art of record and should be allowed.

Claims 2-19 depend from claim 1 and therefore should be allowed for depending from an allowable base claim, among other reasons. Two of these claims, claim 3 and claim 9, have been amended in this communication to correct typographical errors.

B. *Claims 35-39*

The Examiner rejected independent claim 35 under 35 U.S.C. 102(e) as anticipated by Pelc et al. Applicants disagree. Claim 35 is directed to a device for dispensing fluid to a sample or sample holder. The device includes, among other elements, a dispense element and a syringe pump device. The syringe pump device drives fluid incrementally to the dispense element with sufficient velocity and acceleration so that a fluid aliquot of less than about five microliters separates from the dispense element without contacting the sample or the sample holder. As described above, Pelc et al. involves a microdispenser that produces sub-nanoliter aliquots. However, Pelc et al. does not teach or suggest a syringe pump device configured to provide any fluid aliquot without contacting the sample or sample holder, much less a syringe pump device that drive fluid incrementally with sufficient velocity and acceleration so that a fluid aliquot of less than about five microliters separates without

contacting the sample or sample holder. Therefore, for at least these reasons, neither Pelc et al. nor any other art of record teach or suggest a syringe pump device as recited by claim 35. Accordingly, claim 35 should be allowed.

Claims 36-39 depend from claim 35 and therefore should be allowed for depending from an allowable base claim, among other reasons.

C. Claims 46-48

The Examiner rejected independent claim 46 under 35 U.S.C. 102(e) as anticipated by Pelc et al. Applicants disagree. Applicants believe that this claim is novel as filed. Nevertheless, to reduce the number of issues under consideration, and to expedite the issuance of a patent, applicants have canceled claims 46-48, without prejudice, reserving their right to pursue these claims in a continuation application.

II. Claim Rejections – 35 U.S.C. § 103

The Examiner rejected independent claim 30 under 35 U.S.C. § 103(a) as being unpatentable over Pelc et al. in view of U.S. Patent No. 5,660,792 to Koike. Applicants disagree. Claim 30 is directed to a fluid dispensing system. The system includes an array of at least eight dispense tips, with each dispense tip being connected to a separate syringe pump. The system also includes a fluid source bank having plural fluid reservoirs. The system further includes a changeable fluid conduit network capable, in part, of permitting (1) each of at least eight of the pumps to be connected to a separate fluid reservoir, and (2) any subset of pumps to be connected to the same fluid reservoir while one or more other pumps are connected to another fluid reservoir. Neither Pelc et al. nor Koike, either alone or in combination, teaches or suggests the changeable fluid conduit network recited by claim 30.

The Examiner asserts that Pelc et al. in view of Koike meets all the limitations of claim 30, including an element not recited by claim 30, an "interchangeable dispensing element." For example, the Examiner states that Pelc et al. shows a bank of 8 dispensers and teaches every element of claim 30 except for the "interchangeable dispensing element." The Examiner further states that Koike teaches "interchangeable dispensing elements (16 and 18) that have their own feeds (Figure 5)." In contrast, applicants recite a "changeable fluid conduit network" permitting various recited relationships between fluid reservoirs and syringe pumps. Neither reference teaches or suggests the recited relationships between fluid reservoirs and pumps.

Pelc et al. relates to a microvolume liquid handling system, as described above in relation to an embodiment shown in Figure 1. Another embodiment of the system, system 210, includes a single pump disposed in pressure control system 218 (Figure 7). The single pump is connected to a single distribution tube 234 that splits to a plurality of microdispensers 212. Accordingly, Pelc et al. does not teach or suggest even two syringe pumps connected to separate reservoirs, much less, each of at least eight syringe pumps connected to separate fluid reservoirs.

Koike relates to an automatic solid phase extraction device. Figure 5 of Koike, reproduced on the next page, shows a piping system 25 of the device. The piping system includes solvent bottles M1-M6 in fluid communication with syringe pumps 28A, 28B, and 28C. All fluid from solvent bottles M1-M6 reaches syringe pumps 28A-C by travel through a common conduit, which extends upward in Figure 5 from six-way selection valve 26. As a result, different syringe pumps cannot be connected to separate solvent bottles. Therefore, Koike also does not teach or suggest a system permitting even two syringe pumps to be connected to separate fluid reservoirs, much

less, each of at least eight syringe pumps to be connected to a separate fluid reservoir, as recited by claim 30.

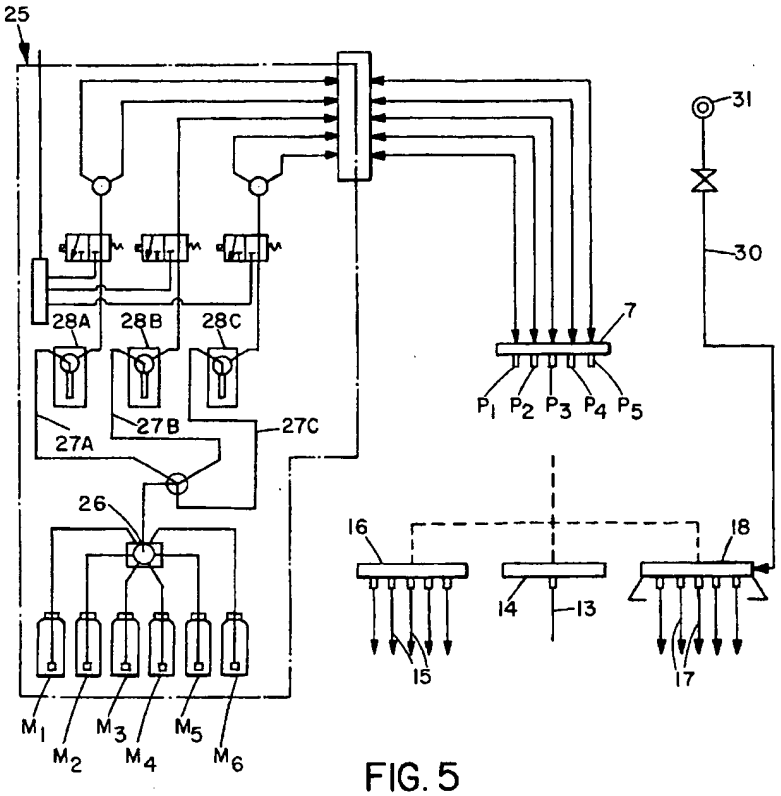

FIG. 5

In summary, the system recited in claim 30 is neither taught nor suggested by Pelc et al. or Koike, alone or in combination. Moreover, the system of claim 30 has various advantages over Pelc et al. and Koike. For example, unlike Pelc et al. and Koike, the system of claim 30 allows any subset of pumps to be connected to the same fluid reservoir while one or more other pumps are connected to another fluid reservoir, significantly increasing dispensing flexibility. Therefore, claim 30 should be allowed.

Claims 31-34 depend from claim 30 and therefore should be allowed for depending from an allowable base claim, among other reasons.

III. New Claim

Applicants have added new claim 59 directed to a fluid dispensing system. The dispensing system includes an array of at least eight dispense tips, a fluid source bank having plural fluid reservoirs, and a changeable fluid conduit network. Each dispense tip is connected to a separate syringe pump. In addition, the changeable fluid conduit network permits (a) each of at least eight of the pumps to be connected to a separate fluid reservoir, and (b) each of at least eight of the pumps to be connected to the same fluid reservoir. Claim 59 is fully supported by the application as filed. Support for claim 59 is found, for example, in original claim 30 and on page 48, line 13, to page 49, line 2 of the application. Claim 59 is allowable over the art of record for at least the reasons described above for claim 30.

IV. Conclusion

Applicants believe that this case is now in condition for allowance, in view of the above amendments and remarks. If a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on October 6, 2003.

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Respectfully submitted,

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